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U.S. Department of Transportation  
Docket Operations  
West Building Ground Floor, Room W12-140  
1200 New Jersey Avenue, SE.  
Washington, DC 20590

Subject: Request for Revision to Exemption No. 10188A – Exemption from Section 25.813(e) of Title 14, Code of Federal Regulations, Emergency Exit Access

Enclosure(s): 1) Petition for Permanent Exemption – Gulfstream Aerospace Corporation – Installation of Interior Doors – Model GVIII-G800

Reference(s): 1) Regulatory Docket No. FAA-2010-0446, Exemption No. 10188, dated December 27, 2010, Exemption from Section 25.813(e) of Title 14, Code of Federal Regulations  
2) Regulatory Docket No. FAA-2010-0446, Exemption No. 10188A, dated June 12, 2020, Exemption from Section 25.813(e) of Title 14, Code of Federal Regulations  
3) Regulatory Docket No. FAA-2015-0230, Exemption No. 11610, dated May 15, 2015, Exemption from Section 25.813(e) of Title 14, Code of Federal Regulations

ODA Project Number(s): AT-01-2015-0017

Dear Sirs:

In accordance with 14 CFR Part 11, Gulfstream Aerospace Corporation requests consideration to revise Regulatory Docket No. FAA-2010-0446, Exemption No. 10188A, dated June 12, 2020, (Reference 2) originally issued to relieve the Gulfstream GVI model aircraft from full compliance with 14 CFR 25.813(e) at amendment 25-116, Emergency Exit Access (Reference 1) and revised to include the Gulfstream GVIII-G700 model aircraft. This revision to the exemption is being requested to include the Gulfstream GVIII-G800 model aircraft, a derivative model of the GVI aircraft. Petition for Permanent Exemption – Gulfstream Aerospace Corporation – Installation of Interior Doors – Model GVIII-G800 is provided in support of this request (Enclosure 1).

Gulfstream believes that good cause exists why action on this petition should not be delayed by publication and comment procedures. We request that the 120-day FAA review and processing period specified in 14 CFR 11.63(d) be reduced to 60 days. Gulfstream feels this request is appropriate as it does not set a precedent, and because the relief requested herein is identical to exemptions granted previously (References 1-3).

Should you have any further questions, or require any additional information, please contact CAO Airworthiness Engineering Specialist Andrea Burkhardt at [Andrea.Burkhardt@gulfstream.com](mailto:Andrea.Burkhardt@gulfstream.com) or (912) 251-1712 (office), or the TC Program Administrator Tom Strohmayr at [Thomas.Strohmayr@gulfstream.com](mailto:Thomas.Strohmayr@gulfstream.com), (912) 395-7778 (office) or (912) 433-6002 (mobile).

Respectfully,

A handwritten signature in black ink that reads "Catherine M. Downen". The signature is written in a cursive, flowing style.

Catherine M. Downen  
ODA Enterprise Program Administrator - TC  
Gulfstream Aerospace Corporation

**Petition for Permanent Exemption**  
**Gulfstream Aerospace Corporation**  
**Installation of Interior Doors**  
**Model GVIII-G800**

This petition is to amend Exemption 10188A to include the model GVIII-G800.

**Relief from Section 14 CFR Part 25.813(e) Amendment 25-128**

Gulfstream Aerospace Corporation (Gulfstream) of Savannah, Georgia has submitted an application to the FAA's Atlanta Aircraft Certification Office for amended type certification of a GVI derivative product of similar design and manufacture to be known as the Gulfstream model GVIII-G800. Project number AT-01-2015-0017 has been assigned to these efforts.

The GVIII-G800 cabin interior relies on installation of various doors to provide certain amenities and configuration options that have become the standard for Executive Class aircraft.

14 CFR 25.813(e), Amendment 25-128 states in part that no door may be installed between any passenger seat that is occupiable for take-off and landing and any passenger emergency exit, such that the door crosses any egress path (including aisles, crossaisles and passageways).

The GVIII-G800 design incorporates two doors between the passenger seating areas and the main entry door.

- One door will be an acoustic door provided between the forward vestibule and the main entry door. Its purpose is to maintain an acceptable acoustic level in the passenger cabin and pilot compartment and will be standard equipment.
- The second door will be a forward vestibule door and is offered on certain interior configurations. Its purpose is to provide separation between passenger and crew area including the galley, flight crew sleeping facility (when installed), and cockpit. The forward vestibule door will also provide isolation in accordance with AC 121-31 when a flight crew sleeping facility is installed.

In accordance with the provisions of 14 CFR 11.81, Gulfstream requests an amendment to Exemption 10188A to include the model GVIII-G800 providing an exemption to 14 CFR 25.813(e) for installations of these cabin interior doors. This will allow the GVIII-G800 aircraft to provide a safe, quiet operating environment for the crew and passengers, and meet the requirements for flight crew sleeping facility (when installed). Gulfstream proposes that specific design features, combined with the unique configuration of the GVIII-G800, will provide an overall level of safety beyond that intended when the FAA promulgated Amendment 25-128.

Based on these features, Gulfstream proposes that this exemption be applicable to both private use aircraft (14 CFR Part 91) and those used for hire (14 CFR Part 135). The information provided herein outlines this rationale.

### **Supportive Information**

At Amendment 25-1, 14 CFR 25.813(e) was revised to restrict installation of doors between passenger compartments. This did not restrict the installation of doors forward and aft of passenger compartments. As such, it continued to be common practice for business class aircraft to install doors which isolate the passenger seating areas from crew working areas. These doors lower noise levels in the passenger cabin and create effective work environments. On October 27, 2004, Amendments 25-116 and 121-306, titles "Miscellaneous Cabin Safety Changes" were published in the Federal Register. This revised 14 CFR 25.813(e) to restrict the installation of any interior door between a passenger seat and any emergency exit, effectively restricting the use of all interior doors. In addition, the FAA revised 14 CFR 121.310(f)(6) to prohibit these doors in airplanes manufactured after November 27, 2006, and operated under 14 CFR Part 121. However, at that time the FAA chose not to amend 14 CFR Part 135 or 14 CFR Part 91. As a result, aircraft certified prior to Amendment 25-116 and operating under 14 CFR Part 135 or 14 CFR Part 91 are permitted to incorporate these types of doors.

When Amendment 25-116 was issued, the FAA noted that this change was incorporated due to concerns over passengers' ability to 1) recognize that an exit exists beyond an interior door forward or aft of the passenger compartment and 2) reach the exit beyond the door in the event of failure of the interior door to open.

For the GVIII-G800 aircraft, Gulfstream believes that it is possible to provide a level of safety consistent with the intent of the 14 CFR Part 25 regulations while allowing for installation of certain interior doors. This will be accomplished by incorporating specific design features that provide an acceptable level of safety. These features will ensure the design will not diminish a passengers' ability to 1) effectively identify the exit and 2) egress the aircraft.

### **Factors Supporting the Petition**

The design features of the GVIII-G800 are identical to those described in Exemption 10188 for the GVI and Exemption 10188A which added GVIII-G700 and the following characteristics of the GVIII-G800 interior doors and passenger cabin will ensure that the passengers' ability to effectively identify the exit is not diminished:

- The doors will be designed to automatically open (stow) based on the airplane being configured for landing and will remain open until the airplane has returned to an airborne flight configuration. The installation of the interior doors will therefore not adversely affect the passenger recognition of the Main Entry Door (MED).
- The doors will only be installed forward of the passenger seating area and between passenger seats and the MED. The MED is the only door available to enter the aircraft and its location is inherently established for all passengers upon boarding.
- Emergency exit locator, marking signs, and emergency lighting will be provided. Gulfstream will comply with the criteria defined in ELOS AT5177AT-T-C-1 (ELOS to 14 CFR 25.811(d) and 14 CFR 25.812(b)).

- The overwing emergency exits are optimally located in the passenger compartment, in clear and obvious view, and are in an area of high passenger density. These exits will also be indicated via locator signs and markers, as well as emergency escape path lighting. This heightened passenger awareness and ease of identification will increase the likelihood of passengers utilizing the overwing exits provided in the cabin versus defaulting to the entry door.

The following design features of the GVIII-G800 interior doors and passenger cabin will ensure that the passenger's ability to effectively egress the aircraft is not diminished by ensuring that the doors will be open for taxi, take-off, and landing without requiring passenger or crew action.

- The doors will be designed to automatically open (stow) when the airplane has been configured for landing (gear down or flaps down).
- The operation of the door to be closed (deployed) position will require manual activation. The doors will be designed so that they can only be closed (deployed) when the gear and flaps are fully retracted (airborne configuration), or for ground maintenance activity.
- The doors will be designed so that, in case of any failure of the closing/latching mechanism, they will default to the open (stowed) position.
- In accordance with Gulfstream's approach to compliance with 14 CFR 25.1309, the failure to egress through any individual emergency exit is classified Major. Gulfstream will demonstrate that the probability of failure to egress through the Main Entry Door (MED), including the probability of failure of both interior doors, will meet the criteria for a failure scenario classified as Major. This will include conducting a quantitative analysis that shows the probability of this scenario to be less than  $10^{-5}$  per flight hour. This hazard criticality is based on 14 CFR 25.783(b)(2).
- The doors will have a hold-open feature that will be shown to react all emergency landing loads specified under 14 CFR 25.561(b).
- The doors will be placarded to be open and latched for taxi, take-off, and landing (TT&L). Manual operation to the open (stowed) position is the primary means by which the doors should be open and stowed for TT&L. The automatic opening feature will ensure egress paths in the event that manual operation has not occurred.
- An amber CAS message will alert pilots if an interior door is not in a properly open (stowed) position for TT&L.
- With the doors in the open (stowed) position, the critical forward emergency landing loads will not cause door to deploy and block access to the main entry door.
- The overwing emergency exits have been designed so that they can all be deployed at the same time to provide multiple, redundant egress paths for escape from the passenger compartment. Each of the four overwing emergency exits require single file egress and have been sized to provide substantial egress area. This reduces the problems caused by passenger panic and congestion typical in single, larger exits. Smooth, effective egress of passengers through the existing overwing exits will also increase the likelihood of passengers utilizing the overwing exits as opposed to seeking alternate escape routes further away (MED).

- Both doors will be designed to be frangible from either side of the door. In case of an emergency, this design will allow a 5<sup>th</sup> percentile female to create an aperture large enough to allow for a 95<sup>th</sup> percentile male to escape.

#### **Additional GVIII-G800 Design Considerations**

- The main entry door is also the flight crew emergency exit. In the event of an emergency evacuation, a trained crew member will be responsible to ensure egress is maintained through this passageway to the MED.
- Through ELOS TC8700AT-T-C-1 to 14 CFR 25.807(a)(3), 14 CFR 25.807(g)(2)(3), and 14 CFR 25.807(i)(2), Gulfstream has addressed FAA policy number ANM-115-08-02, and has demonstrated that the GVIII-G800 overwing exit pair will provide adequate egress capability to that of a required Type III.
- The GVIII-G800 emergency exits configuration is identical to the GVI emergency exits covered under ELOS TC8700AT-T-C-1 and Gulfstream has demonstrated that the overwing exit pair was equivalent to the size and number of exits required by 14 CFR 25.807(g). The GVIII-G800 will comply with ELOS TC8700AT-T-C-1 to 14 CFR 25.807(g) for the required number of emergency exits through the overwing exits and Gulfstream has demonstrated that the MED was an emergency exit in excess of the minimum required on the left hand side of the aircraft.
- Compliance with ELOS TC8700AT-T-C-1 to 14 CFR 25.807(i)(2) for ditching will be shown through the use of the overwing emergency exits as required by ELOS TC8700AT-T-C-1 to 25.807(g). The forward entry door will not be utilized under this scenario for emergency evacuation and applicable placards will be provided. The Airplane Flight Manual will define proper procedures for exiting the aircraft in these conditions.
- Many of the passengers typically utilizing Executive Class aircraft are frequent passengers who are familiar with the operation of the interior features and location of emergency exits.

#### **Effect of the Exemption on Safety**

Acceptance of the proposed GVIII-G800 design will ensure that a level of safety consistent with the intent of the regulation has been provided. The design of the proposed interior doors will ensure the same level of safety for cabin egress as is required for any emergency exit and will provide a clear egress path. This combined with other characteristics of the GVIII-G800, such as redundancy of emergency exits, large area overwing exits, and optimal location of emergency exits will provide a level of safety exceeding that currently prescribed under 14 CFR Part 25.

Although the current operational requirements under 14 CFR Parts 91 and 135 for this type of aircraft have not been amended to correspond to the 14 CFR Part 25 restriction, Gulfstream acknowledges that the 14 CFR Part 25 change is an important enhancement to the level of safety offered by newly manufactured aircraft. The design criteria proposed by Gulfstream for the GVIII-G800 raises the current level of safety to that envisioned by Amendment 25-128 to 14 CFR 25.813(e).

### **Issue of Public Interest**

Gulfstream Aerospace Corporation designs, develops, manufactures, markets and services the world's most technologically advanced business jet aircraft to an international market. Gulfstream's leadership position in the global business jet market is due to the efforts of its nearly ten thousand employees in the manufacturing plants, completion centers, and service centers across North America. The corporation utilizes numerous products, such as avionics and environmental control systems, from scores of suppliers located throughout the United States. Gulfstream competes for new business all over the world. This exemption will directly impact the cabin and flight deck acoustics and the effectiveness of flight crew sleeping facility design, thereby having a direct effect on GVIII-G800 sales. The ability to provide additional acoustic barrier from external noise for the flight deck and cabin are being requested by prospective aircraft operators who compare the GVIII-G800 with products of foreign aircraft manufacturers. The inability to provide such features will ultimately cause a reduction in perspective sales. The manufacture, completion, and support of Gulfstream aircraft would aid in the stabilization of the job market as well as growth of the American economy, which is in the interest of the public.

Since customers desire to have these interior doors, they may opt for aircraft designed to an earlier certification basis, in lieu of the GVIII-G800. This will restrict advancements in safety introduced by Gulfstream with the GVIII-G800, not only in the areas of the cabin safety, but throughout the airplane. This is counterproductive to both Gulfstream and the FAA's goal of continuous improvement in overall safety. The advancement of aircraft safety is in the interest of the public.

### **Operation Outside the United States**

Per 14 CFR 11.81(h), Gulfstream requests that consideration be given to extending this exemption for operation outside of the United States. Gulfstream aircraft are routinely registered and operated outside of the United States and projections are the same for the Model GVIII-G800. Granting this extension of privileges will allow for operations based within foreign countries, having bilateral agreements with the United States accepting FAA 14 CFR Part 25 as their airworthiness standard for transport category aircraft. Gulfstream believes that limiting this exemption to use within the United States would put unfair restrictions on the marketability of this aircraft.

### **Conclusion**

Gulfstream believes that the above arguments favor an amendment to Exemption 10188A to include the model GVIII-G800 providing exemption from 14 CFR 25.813(e) that would allow for installation of certain interior doors on the GVIII-G800 aircraft. In addition, Gulfstream believes that an exemption is in the public interest and will provide a level of passenger safety consistent with the current 14 CFR Part 25 regulations.